

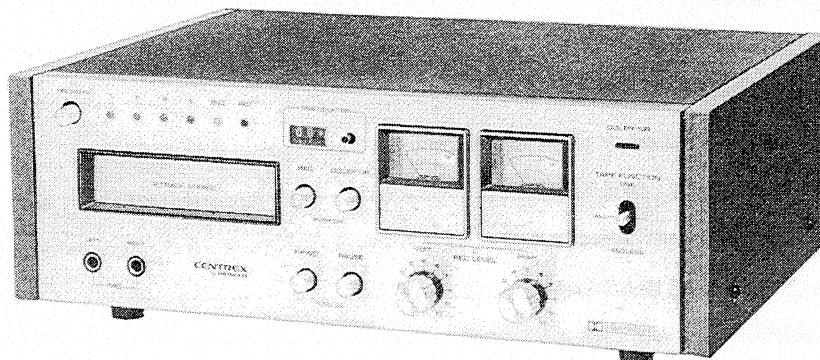
RH-65

KU
KC



**8 TRACK HOME STEREO
RECORDING DECK**

SERVICE MANUAL




SPECIFICATIONS

Semi-Conductors	2 IC's, 17 transistors, 16 diodes, 1 thyristor
Power Source	AC 120V 60 Hz
Power Consumption	No more than 30W
Cartridge	Any 8 track cartridges
Wow and Flutter	No more than 0.15% (WRMS)
Fast Forward Time	Approx. 2 times
Frequency Response	30 ~ 15,000 Hz
Cross Talk	More than 45 dB
Signal to Noise Ratio	More than 45 dB
Input Level	Mic: 0.5 mV (Typical) Line: 100 mV (Typical)
Input Impedance	Line: 100 k Ω
Output Level	Line: 580 mV
Output Impedance	Line: 80 Ω

RECORDING SECTION

Erasing Ratio	More than 50 dB
Dimensions (W x H x D)	375 x 115 x 275 mm (14-3/4 x 4-1/2 x 10-7/8 in.)
Weight	6.1 kg (13.4 lbs.)

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"The word 'Dolby' and  are trade marks of Dolby Laboratories Inc."

Note:
Specifications and the design subject to possible modification without notice due to improvements.

CENTREX
by PIONEER

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1. PARTS LOCATION

RH-65

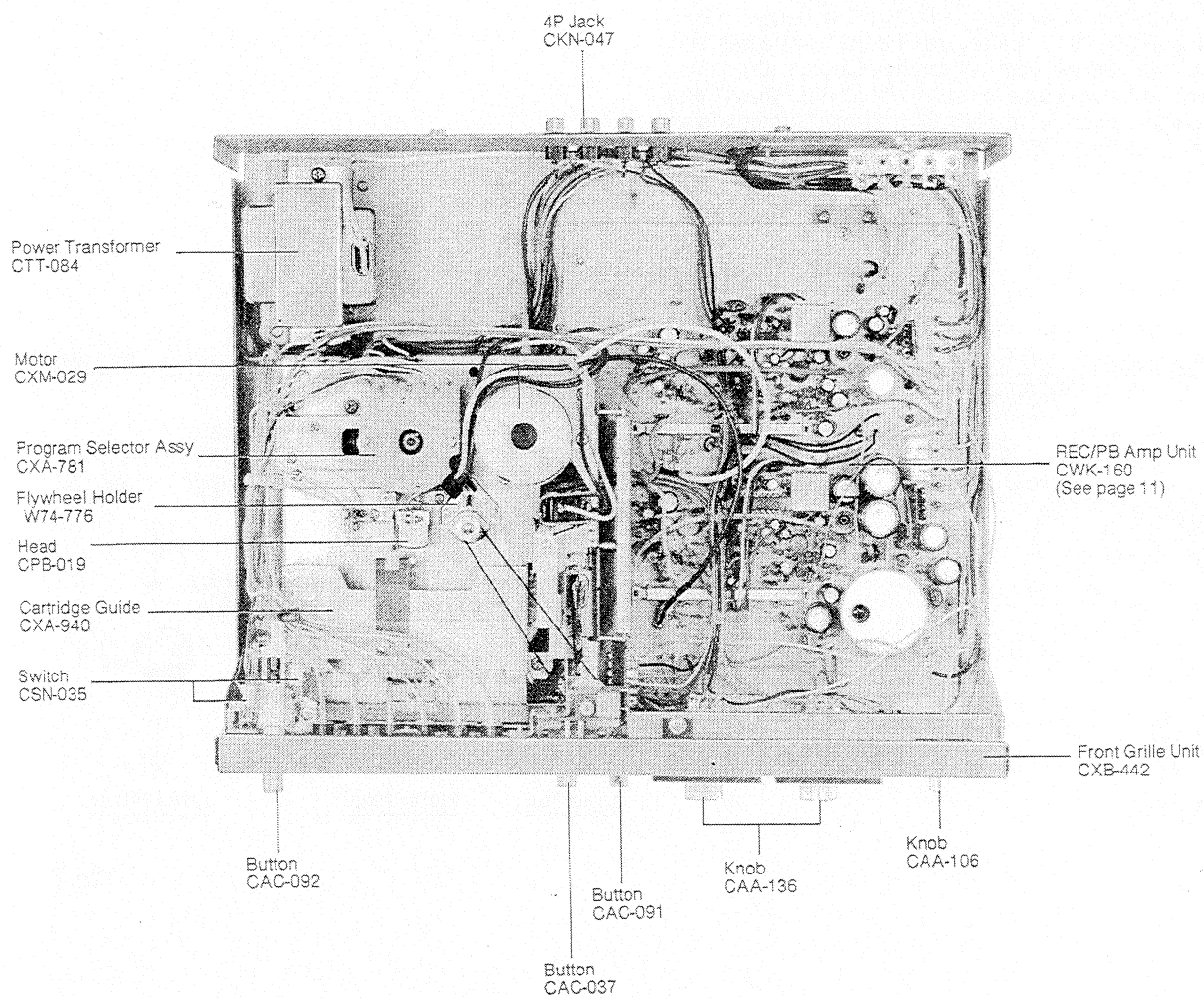


Fig.1

2. CIRCUIT DESCRIPTION

• Recording Mode

NPN-NPN two-stage direct-coupled amplifiers (Q1, Q3) function as Microphone Amplifiers on "RECORD". With Microphone jack inserted in MIC, Line In is switched to MIC. Output at Line Out is 580mV with 400Hz at approximately 0.6mV input.

VR1 is the REC Level Control. Line Out terminal can be used as REC Monitor. And even when Dolby switch (S4) is ON, the frequency characteristics are flat.

The output (No. 7 terminal) of Dolby IC is added to REC Amplifiers (Q9, Q11). Meter Amplifier (Q7) activates Level Meter via Voltage Doubler Rectifier Circuits (D1, D3). Q9 and Q11 (two-stage direct-coupled REC Amplifiers) regulate the recording current with a Base Circuit and an Emitter Circuit (L1, C51).

R55, C45 and L1, C51 (Emitter Circuits) are high-frequency compensation circuits; R57 and C47 are low-frequency compensation circuits.

VR3 is a semifixed resistor for adjusting recording current.

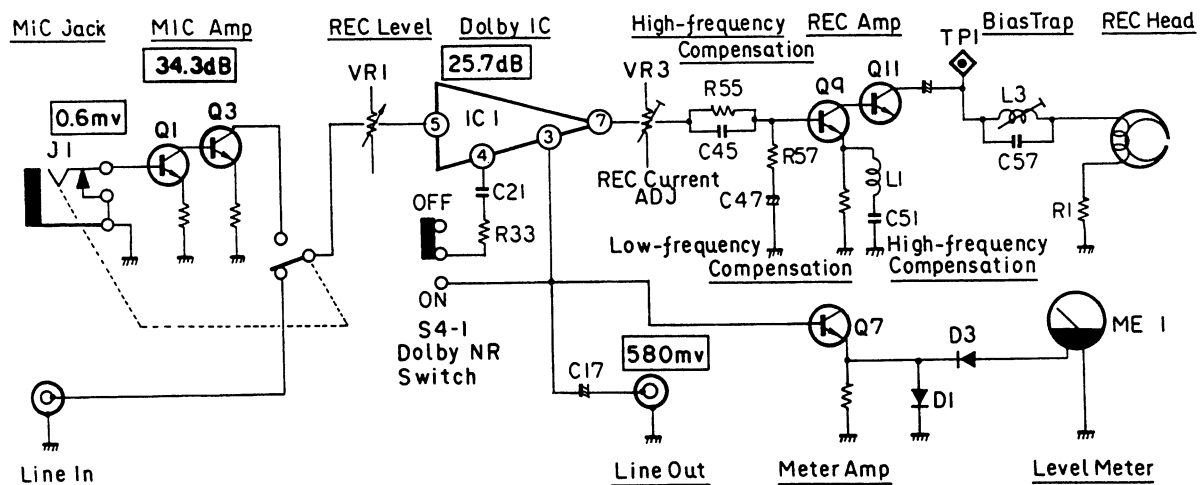


Fig.2

• Playback Mode

When playing back, Q1 and Q3 function as NAB equalizer amplifiers. VR1 is a semifixed resistor for adjusting playback level. Q5 is a muting circuit for F.F. The signal added to No. 5 terminal of Dolby IC functions as same as it does when recording.

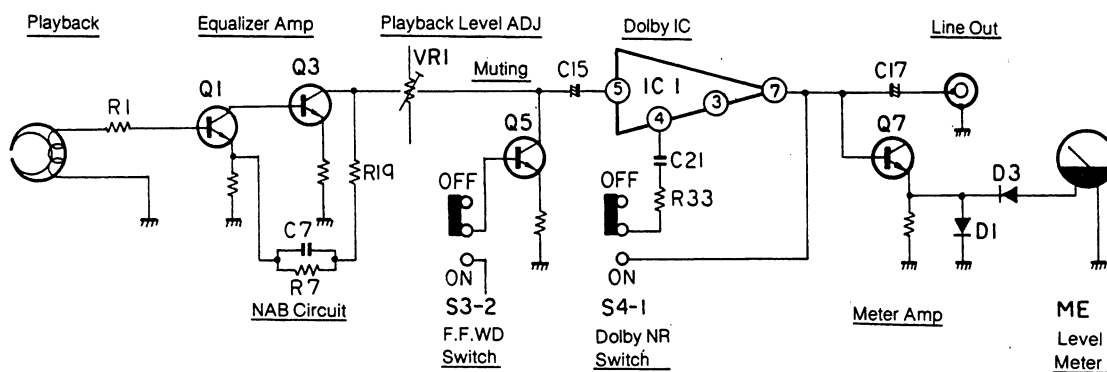


Fig.3

3. DISASSEMBLY ::

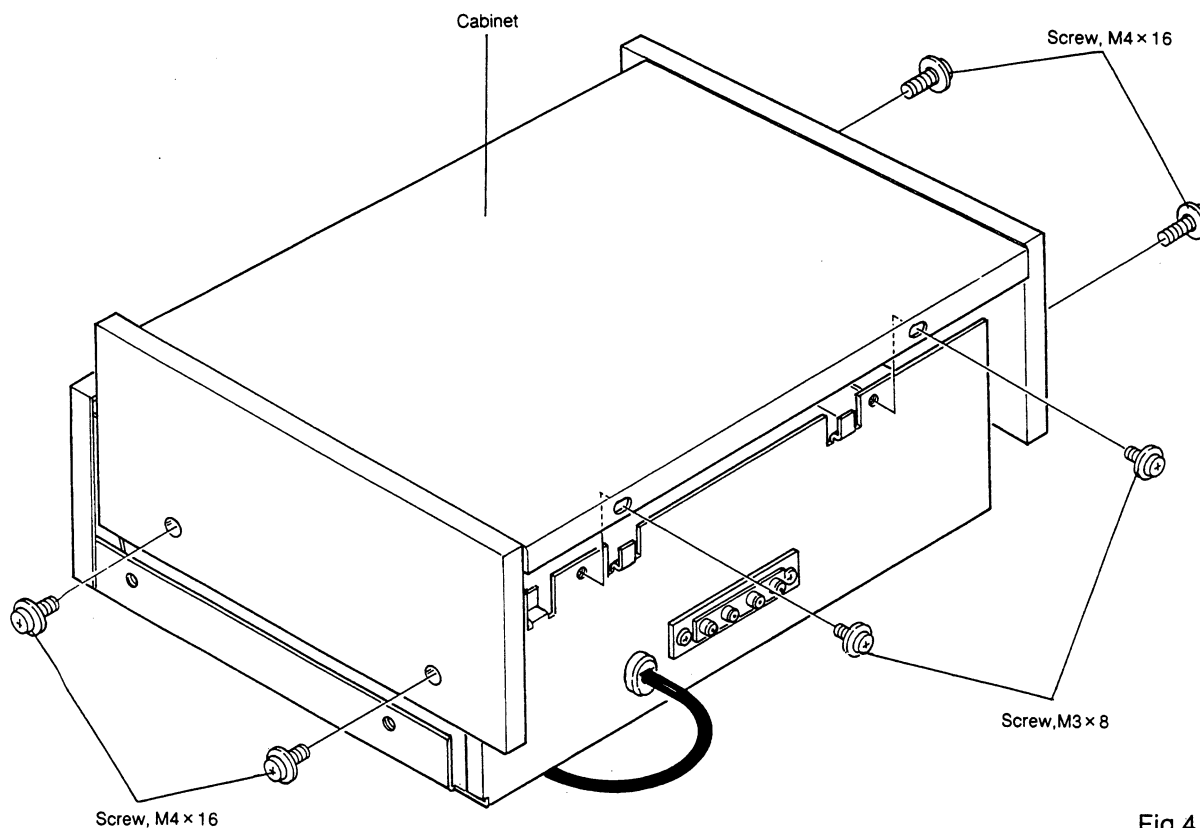


Fig.4

4. ADJUSTMENT

4.1 HEAD ADJUSTMENT

• Connection Diagram

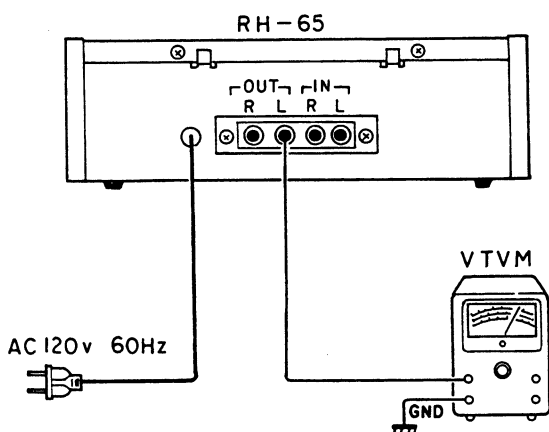


Fig.5

• Azimuth Adjustment

1. Insert test tape PST-4.2 and change over program to "3". Adjust by turning azimuth adjusting screw so that the VTVM indicates maximum reading. After completion of adjustment, fasten the adjusting screw by using screwlock adhesive.

• Cross Talk Adjustment

1. Insert test tape P-328 and set program to "2" and adjust by turning cross talk adjusting nut so that the VTVM indicates minimum reading.
2. Change over program "3" and confirm that the VTVM indicates maximum reading. If maximum output is not obtained, repeat steps from 1 to 2.

• Test Tape

Item \ Test tape	PST-4.2	P-328
Recording track	Full tracks	1, 3, 5, 7
Frequency	8 kHz	400 Hz
Level	- 13 dB	0 dB
Application	Azimuth	Cross talk

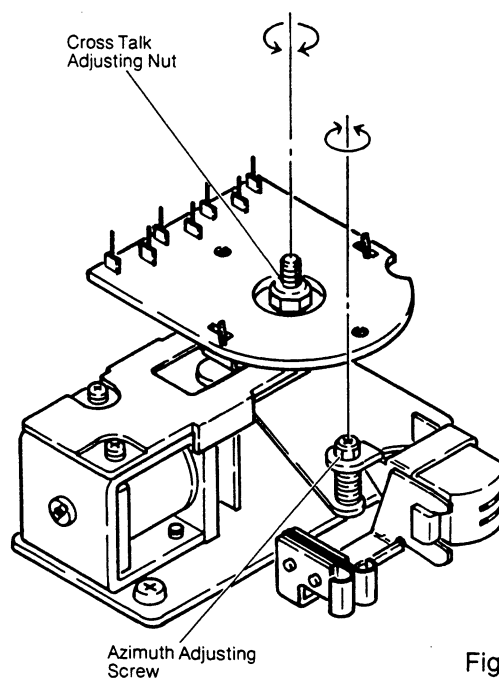


Fig. 6

4.2 PLAYBACK LEVEL ADJUSTMENT

• Connection Diagram

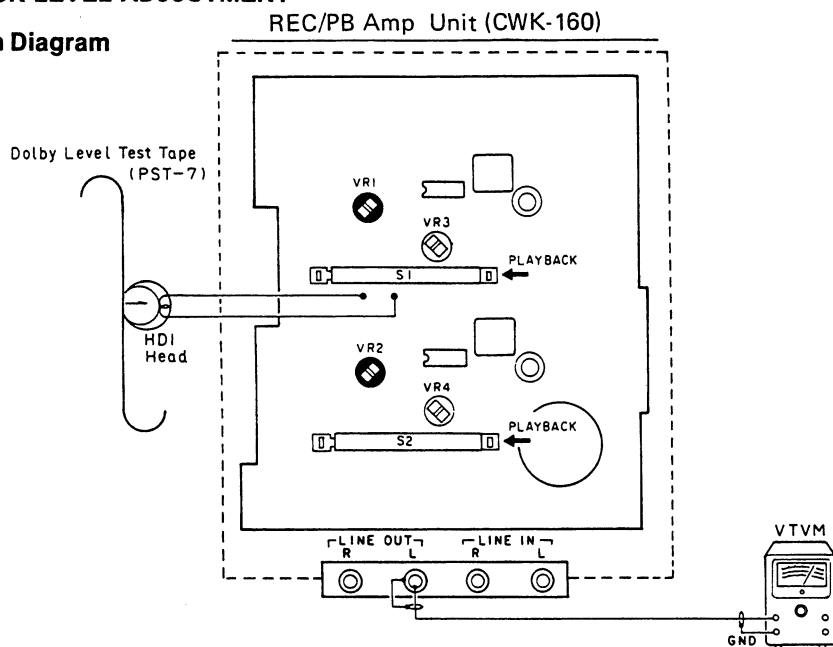


Fig. 7

• To Adjust

1. With Dolby level test tape (PST-7) loaded, adjust the playback level control semifixed resistors (VR1 and VR2) so that output level of Line Out reaches 580mV.

4.3 BIAS AND BIAS TRAP ADJUSTMENT

• Connection Diagram

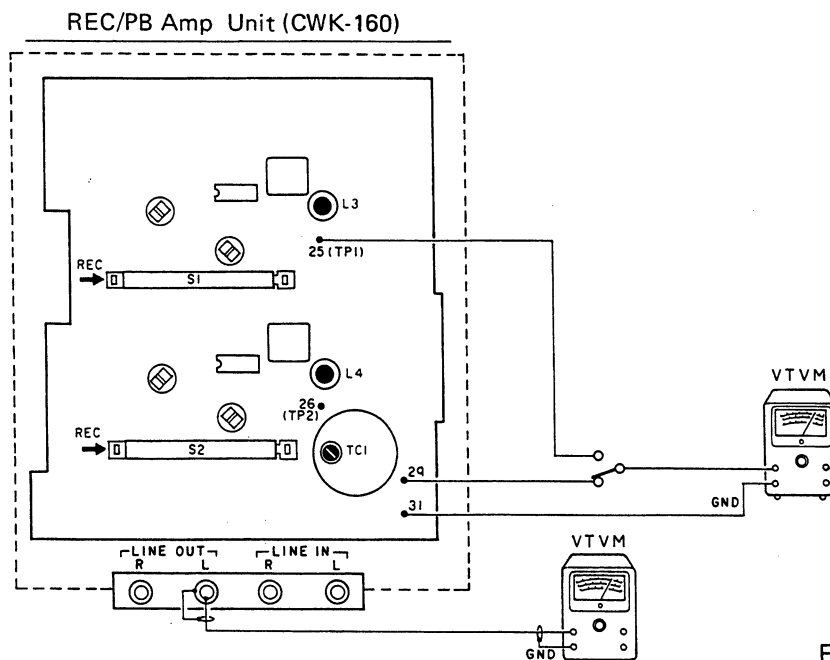


Fig. 8

• To Adjust

1. With the equipment in recording mode, turn Record Level control to the minimum.
2. Connect VTVM across terminals 29 and 31(GND), and adjust the bias control ceramic trimmer (TC1) so that output level reaches 90mV.
3. Connect VTVM across terminals 25 (TP1), 26 (TP2) and 31(GND) and adjust L3 and L4 so the output level is

minimized.

4. Connect VTVM to Line Out. Ascertain that the reading on VTVM is less than - 50dBm.

NOTE:

If not, check to see if Bottom Plate is installed or if Head is properly wired.

4.4 CONFIRM THE INDICATION OF LEVEL METER

REC/PB Amp Unit (CWK-160)

• Connection Diagram

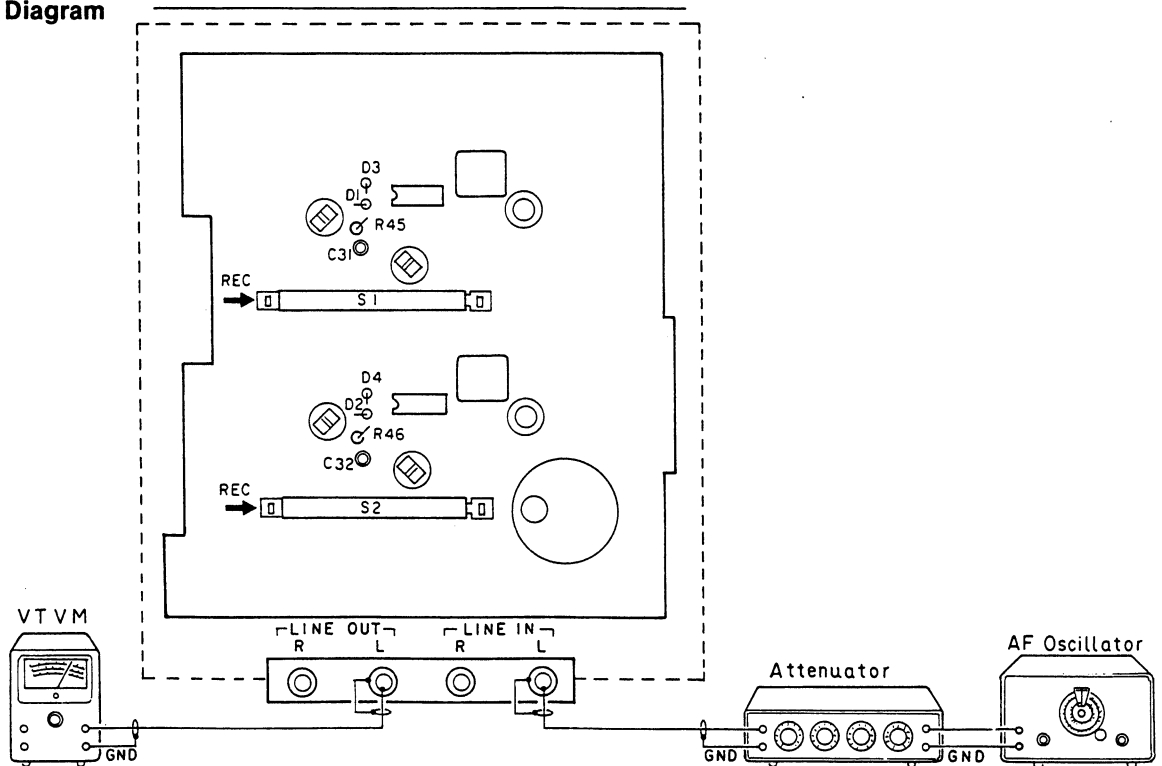


Fig. 9

• To Adjust

1. Add a 400Hz, -20dBm signal at Line In.
2. Adjust Record Level Control so that the pointer of Level Meter will come to +2 point (Dolby mark). Check

to make sure the output level of Line Out stays 580mV \pm 1dB. If Level Meter does not indicate +2 point, check D1 ~ D4, C31, C32, R45 and R46 circuits.

4.5 RECORD/PLAYBACK LEVEL ADJUSTMENT

REC/PB Amp Unit (CWK-160)

• Connection Diagram

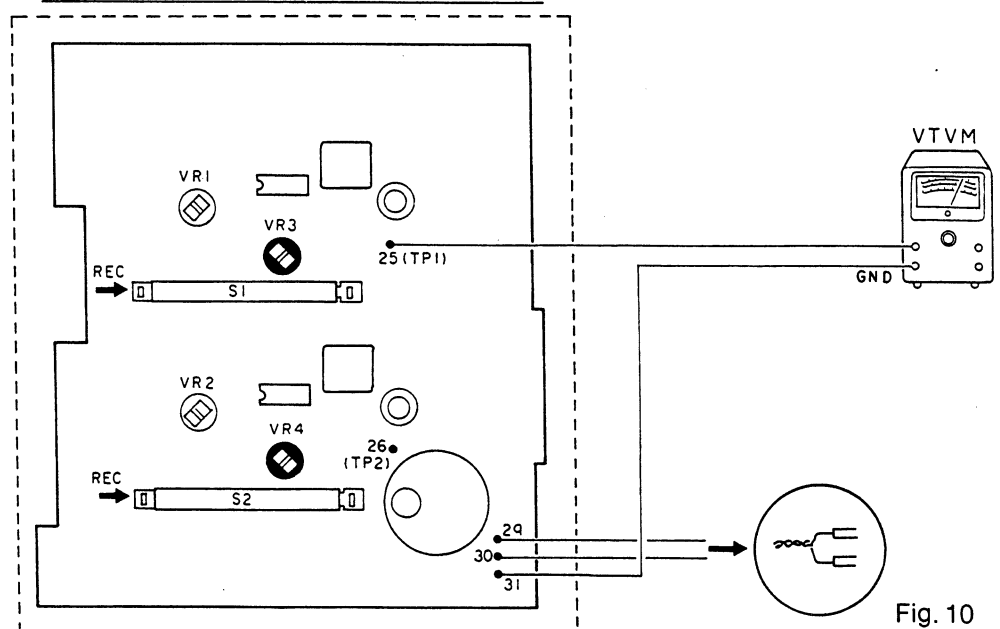


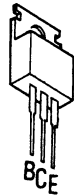
Fig. 10

• IC and Transistors

2SC644
2SC828
2SC1318



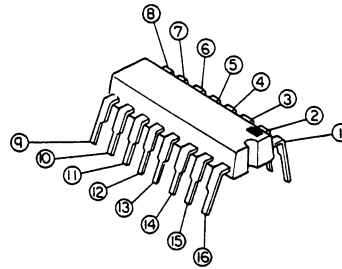
2SC1061



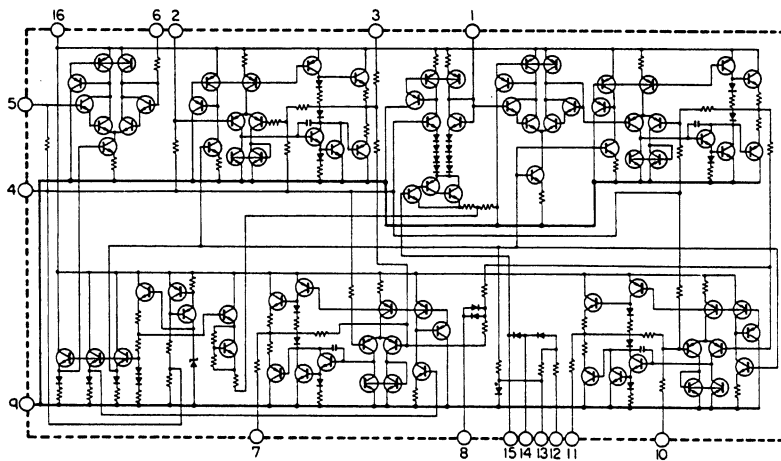
2SD471



CR860B



CR860B



• Parts List

NOTICE: Of the descriptive symbols of the resistor and capacitor, the encircled alphabetic letter denotes the allowable error.

Example: RD1/4VS100 \textcircled{J} C: $\pm 0.25\text{pF}$ F: $\pm 1\text{pF}$ J: $\pm 5\%$ M: $\pm 20\%$ Z: $\begin{smallmatrix} +80\% \\ -20\% \end{smallmatrix}$
CEA100 \textcircled{P} 25 D: $\pm 0.5\text{pF}$ G: $\pm 2\%$ K: $\pm 10\%$ X: $\begin{smallmatrix} +40\% \\ -20\% \end{smallmatrix}$ P: $\begin{smallmatrix} +100\% \\ -10\% \end{smallmatrix}$

MISCELLANEOUS

Ref. Key	Parts No.	Description	Ref. Key	Parts No.	Description
IC1	CR860B	IC ✓	D11	RD24E-B	Diode
IC2	CR860B	IC	D12	10DS-2	Diode
Q1	2SC644-R, S, T	Transistor	D13	10DS-2	Diode
Q2	2SC644-R, S, T	Transistor	D14	1S1555	Diode
Q3	2SC644-R, S, T	Transistor	D15	1S1555	Diode
Q4	2SC644-R, S, T	Transistor	S1	CSH-023	Switch
Q5	2SC828-Q, R, S	Transistor	S2	CSH-023	Switch
Q6	2SC828-Q, R, S	Transistor	S3	CSG-083	Switch
Q7	2SC828-Q, R, S	Transistor	L1	CTF-061	Coil, 8.2mH ✓
Q8	2SC828-Q, R, S	Transistor	L2	CTF-061	Coil, 8.2mH
Q9	2SC644-R, S, T	Transistor	L3	CTX-032	Coil
Q10	2SC644-R, S, T	Transistor	L4	CTX-032	Coil
Q11	2SC644-R, S, T	Transistor	L5	CTF-029	Ferri-Inductor, 10mH
Q12	2SC644-R, S, T	Transistor	F1	CWX-226	Filter ✓
Q13	2SC1318-Q, R	Transistor	F2	CWX-226	Filter
Q14	2SC1318-Q, R	Transistor	T1	CTX-027	Transformer ✓
Q15	2SC1061-B, C	Transistor	TC1	CCL-024	Ceramic Trimmer, 100pF
Q16	2SC828-Q, R, S	Transistor	VR1	C92-618	Volume, 4.7k Ω (B)
Q17	2SD471	Transistor ✓	VR2	C92-618	Volume, 4.7k Ω (B)
SCR1	CR02AM-1	Thyristor ✓	VR3	C92-618	Volume, 4.7k Ω (B)
D1	1N60	Diode	VR4	C92-618	Volume, 4.7k Ω (B)
D2	1N60	Diode			
D3	1N60	Diode			
D4	1N60	Diode			
D5	1N60	Diode			
D6	1N60	Diode			
D7	1S1886	Diode			
D8	1S1886	Diode			
D9	1S1886	Diode			
D10	1S1555	Diode			

RESISTORS

Ref. Key	Parts No.	Description	Ref. Key	Parts No.	Description
R1	RD1/4VS101J	Resistor 100 Ω 1/4W	R6	RD1/4VS224JNL	Resistor 220k Ω 1/4W
R2	RD1/4VS101J	Resistor 100 Ω 1/4W	R7	RD1/4VS334JNL	Resistor 330k Ω 1/4W
R3	RD1/4VS222J	Resistor 2.2k Ω 1/4W	R8	RD1/4VS334JNL	Resistor 330k Ω 1/4W
R4	RD1/4VS222J	Resistor 2.2k Ω 1/4W	R9	RD1/4VS334JNL	Resistor 330k Ω 1/4W
R5	RD1/4VS224JNL	Resistor 220k Ω 1/4W	R10	RD1/4VS334JNL	Resistor 330k Ω 1/4W

Ref. Key	Parts No.	Description
R101	RS3P271J	Resistor 270Ω 3W
R102	RS3P271J	Resistor 270Ω 3W
R103	RS2P221J	Resistor 220Ω 2W
R104	RS3P271J	Resistor 270Ω 3W
R105	RD1/4VS561J	Resistor 560Ω 1/4W

Ref. Key	Parts No.	Description
R106	RD1/4VS561J	Resistor 560Ω 1/4W

CAPACITORS

Ref. Key	Parts No.	Description
C1	CCDSL121J50	Capacitor 120pF 50V
C2	CCDSL121J50	Capacitor 120pF 50V
C3	CEA3R3P50	Capacitor 3.3μF 50V
C4	CEA3R3P50	Capacitor 3.3μF 50V
C5	CCDSL330K50	Capacitor 33pF 50V
C6	CCDSL330K50	Capacitor 33pF 50V
C7	CQMA332J50	Capacitor 3300pF 50V
C8	CQMA332J50	Capacitor 3300pF 50V
C9	CEA4R7P35	Capacitor 4.7μF 35V
C10	CEA4R7P35	Capacitor 4.7μF 35V
C11	CEA2R2P50	Capacitor 2.2μF 50V
C12	CEA2R2P50	Capacitor 2.2μF 50V
C13	CEA101P35	Capacitor 100μF 35V
C14	CEA101P35	Capacitor 100μF 35V
C15	CSZAR33M35	Capacitor 0.33μF 35V
C16	CSZAR33M35	Capacitor 0.33μF 35V
C17	CEA100P16	Capacitor 10μF 16V
C18	CEA100P16	Capacitor 10μF 16V
C19	CEA100P16	Capacitor 10μF 16V
C20	CEA100P16	Capacitor 10μF 16V
C21	CQMA562J50	Capacitor 5600pF 50V
C22	CQMA562J50	Capacitor 5600pF 50V
C23	CEA100P16	Capacitor 10μF 16V
C24	CEA100P16	Capacitor 10μF 16V
C25	CQMA472J50	Capacitor 4700pF 50V
C26	CQMA472J50	Capacitor 4700pF 50V
C27	CQMA273J50	Capacitor 0.027μF 50V
C28	CQMA273J50	Capacitor 0.027μF 50V
C29	CEA100P16	Capacitor 10μF 16V
C30	CEA100P16	Capacitor 10μF 16V
C31	CEA3R3P50	Capacitor 3.3μF 50V
C32	CEA3R3P50	Capacitor 3.3μF 50V
C33	CQMA473J50	Capacitor 0.047μF 50V
C34	CQMA473J50	Capacitor 0.047μF 50V
C35	CEA100P16	Capacitor 10μF 16V

Ref. Key	Parts No.	Description
C36	CEA100P16	Capacitor 10μF 16V
C37	CEA010P50	Capacitor 1μF 50V
C38	CEA010P50	Capacitor 1μF 50V
C39	CQMA104J50	Capacitor 0.1μF 50V
C40	CQMA104J50	Capacitor 0.1μF 50V
C41	CSZAR33M35	Capacitor 0.33μF 35V
C42	CSZAR33M35	Capacitor 0.33μF 35V
C43	CEA471P16	Capacitor 470μF 16V
C44	CEA471P16	Capacitor 470μF 16V
C45	CQMA152J50	Capacitor 1500pF 50V
C46	CQMA152J50	Capacitor 1500pF 50V
C47	CSZAR33M35	Capacitor 0.33μF 35V
C48	CSZAR33M35	Capacitor 0.33μF 35V
C49	CEA2R2P50	Capacitor 2.2μF 50V
C50	CEA2R2P50	Capacitor 2.2μF 50V
C51	CQMA123J50	Capacitor 0.012μF 50V
C52	CQMA123J50	Capacitor 0.012μF 50V
C53	CEA470P10	Capacitor 47μF 10V
C54	CEA470P10	Capacitor 47μF 10V
C55	CEA100P35	Capacitor 10μF 35V
C56	CEA100P35	Capacitor 10μF 35V
C57	CKDYB221J50	Capacitor 220pF 50V
C58	CKDYB221J50	Capacitor 220pF 50V
C59	CEA100P35	Capacitor 10μF 35V
C60	CEA100P35	Capacitor 10μF 35V
C61	CEA220P10	Capacitor 22μF 10V
C62	CEA221P25	Capacitor 220μF 25V
C63	CQMA332J50	Capacitor 3300pF 50V
C64	CQMA332J50	Capacitor 3300pF 50V
C65	CQMA103J50	Capacitor 0.01μF 50V
C66	CQMA104J50	Capacitor 0.1μF 50V
C67	CQMA473M50	Capacitor 0.047μF 50V
C68	CEA101P50	Capacitor 100μF 50V
C69	CEA100P50	Capacitor 10μF 50V
C70	CQMA473M50	Capacitor 0.047μF 50V

Ref. Key	Parts No.	Description			
C71	CEA331P50	Capacitor	330μF	50V	
C72	CEA102P50	Capacitor	1000μF	50V	
C73	CEA102P50	Capacitor	1000μF	50V	
C74	CEA470P16	Capacitor	47μF	16V	
C75	CEA100P16	Capacitor	10μF	16V	

Ref. Key	Parts No.	Description			
C76	CEA102P25	Capacitor	1000μF	25V	
C77	CKDYB181J50	Capacitor	180pF	50V	
C78	CKDYB181J50	Capacitor	180pF	50V	
C79	CEA220P10	Capacitor	22μF	10V	















7. MISCELLANEOUS PARTS LIST RH-65














Ref. Key	Parts No.	Description	Ref. Key	Parts No.	Description
D1	SIB01-01 or	Diode	T1	CTT-084	Power Transformer
	SIB01-02 or	Diode	M	CXM-029	Motor
	FR2-02	Diode	L1	CTF-003	Coil, 15 μ H
C1	CKDYF102Z25	Capacitor 0.001 μ F 25V	HD1	CPB-019	Head
C2	CKDYF102Z25	Capacitor 0.001 μ F 25V	VR1	CCS-140	Volume, 100k Ω (A) ✓
C3	CEA2R2P50	Capacitor 2.2 μ F 50V	VR2	CCS-140	Volume, 100k Ω (A)
SO	CXP-009	Solenoid	S1	S21-625	Switch
J1	CKN-014	Jack	S2	CSN-035	Switch
J2	CKN-014	Jack	S3	CSN-035	Switch
J3	CKN-047	4P Jack	S4	CSG-048	Switch
ME1	CAW-038	Meter ✓	S5	CSG-040	Switch
ME2	CAW-038	Meter	S6	CSK-006	Switch
IL1	CEL-020	Lamp, 14V 60mA			
IL2	CEL-020	Lamp, 14V 60mA			
IL3	CEL-020	Lamp, 14V 60mA			
IL4	CEL-020	Lamp, 14V 60mA ✓			
IL5	CEL-053	Lamp, 14V 60mA			
IL6	CEL-053	Lamp, 14V 60mA			
IL7	CEL-020	Lamp, 14V 60mA			
IL8	CEL-020	Lamp, 14V 60mA			

Changed \rightarrow CXP-023

8. NOMENCLATURE OF SCREWS, WASHERS AND NUTS

The following symbols stand for screws, washers and nuts as shown in exploded view.

Symbol	Description	Shape
RT	Brazier head tapping screw	
PT	Pan head tapping screw	
BT	Binding head tapping screw	
CT	Countersunk head tapping screw	
TT	Truss head tapping screw	
OCT	Oval countersunk head tapping screw	
PM	Pan head machine screw	
CM	Countersunk head machine screw	
OCM	Oval countersunk head machine screw	
TM	Truss head machine screw	
BM	Binding head machine screw	
PSA	Pan head screw with spring lock washer	
PSB	Pan head screw with spring lock washer and flat washer	
PSF	Pan head screw with flat washer	

Symbol	Description	Shape
EW	E type washer	
FW	Flat washer	
SW	Spring lock washer	
N	Nut	
WN	Washer faced nut	
ITW	Internal toothed lock washer	
OTW	Outernal toothed lock washer	
SC	Slotted set screw (Cone point)	
SF	Slotted set screw (Flat point)	
HS	Hexagon socket headless set screw	
OCW	Oval countersunk head wood screw	
CW	Countersunk head wood screw	
RW	Round head wood screw	

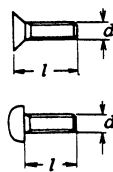
EXAMPLE

PM 3x8

length in mm (l)

diameter in mm (d)

Symbol

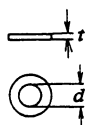


FW 9φ x 1t

thickness in mm (t)

diameter in mm (d)

Symbol



NOTICE: Parts whose parts numbers are omitted are subject to being not supplied.

11. PACKING METHOD (RH-65KU) RH-65

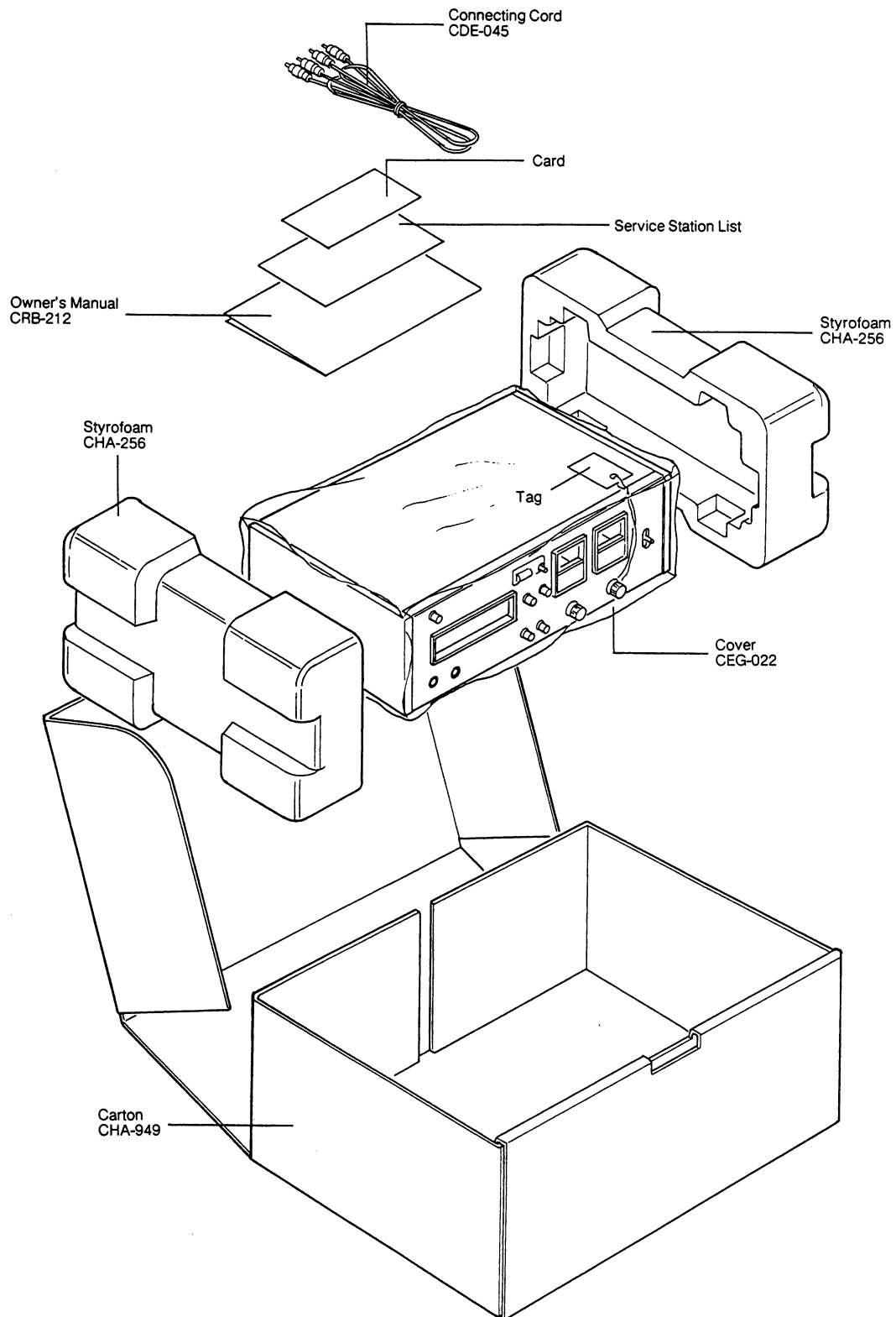


Fig. 16

12. PACKING METHOD (RH-65KC)

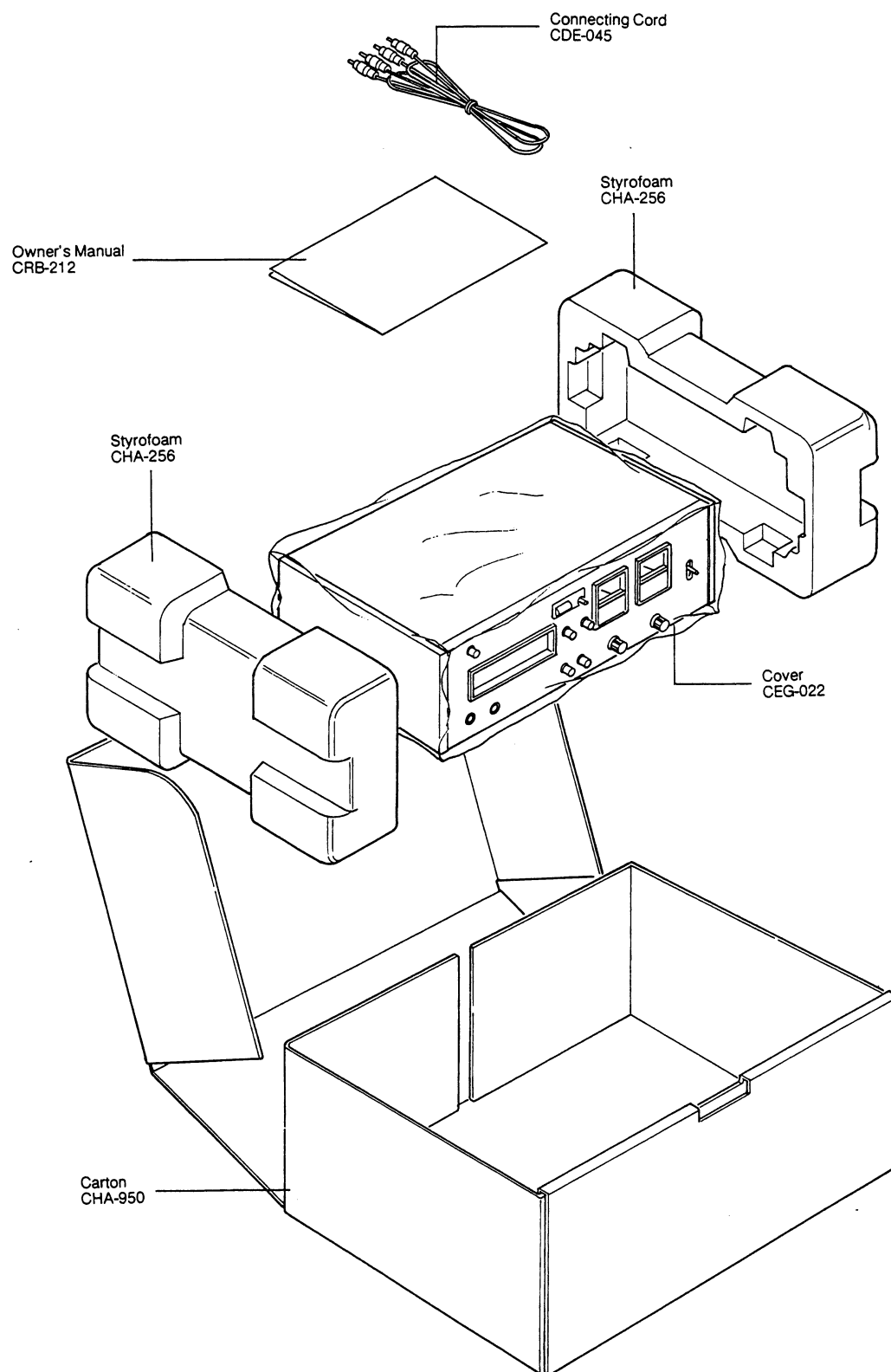
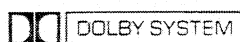


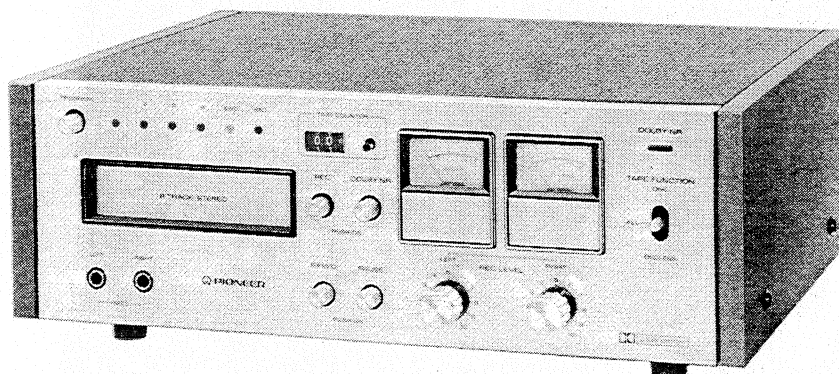
Fig. 17

RH-65 D



8 TRACK HOME STEREO RECORDING DECK

SERVICE MANUAL




SPECIFICATIONS

Semi-Conductors 2 IC's, 17 transistors,
16 diodes, 1 thyristor
Power Source AC 120/220/240V 50/60Hz
Power Consumption No more than 30W
Cartridge Any 8 track cartridges
Wow and Flutter No more than 0.15% (WRMS)
Fast Forward Time Approx. 2 times
Frequency Response 30 ~ 15,000 Hz
Cross Talk More than 45 dB
Signal to Noise Ratio More than 45 dB
Input Level Mic: 0.5 mV (Typical)
Line: 100 mV (Typical)
Input Impedance Line: 100 k Ω
Output Level Line: 580 mV
Output Impedance Line: 80 Ω

RECORDING SECTION

Erasing Ratio More than 50 dB
Dimensions (W x H x D) 375 x 115 x 275 mm
(14-3/4 x 4-1/2 x 10-7/8 in.)
Weight 6.1 kg (13.4 lbs.)

"Manufactured under license from Dolby Laboratories Inc."
"The word 'Dolby' and  are trade marks of Dolby Laboratories Inc."

Note:
Specifications and the design subject to possible modification without notice
due to improvements.

 **PIONEER®**

PARTS LOCATION

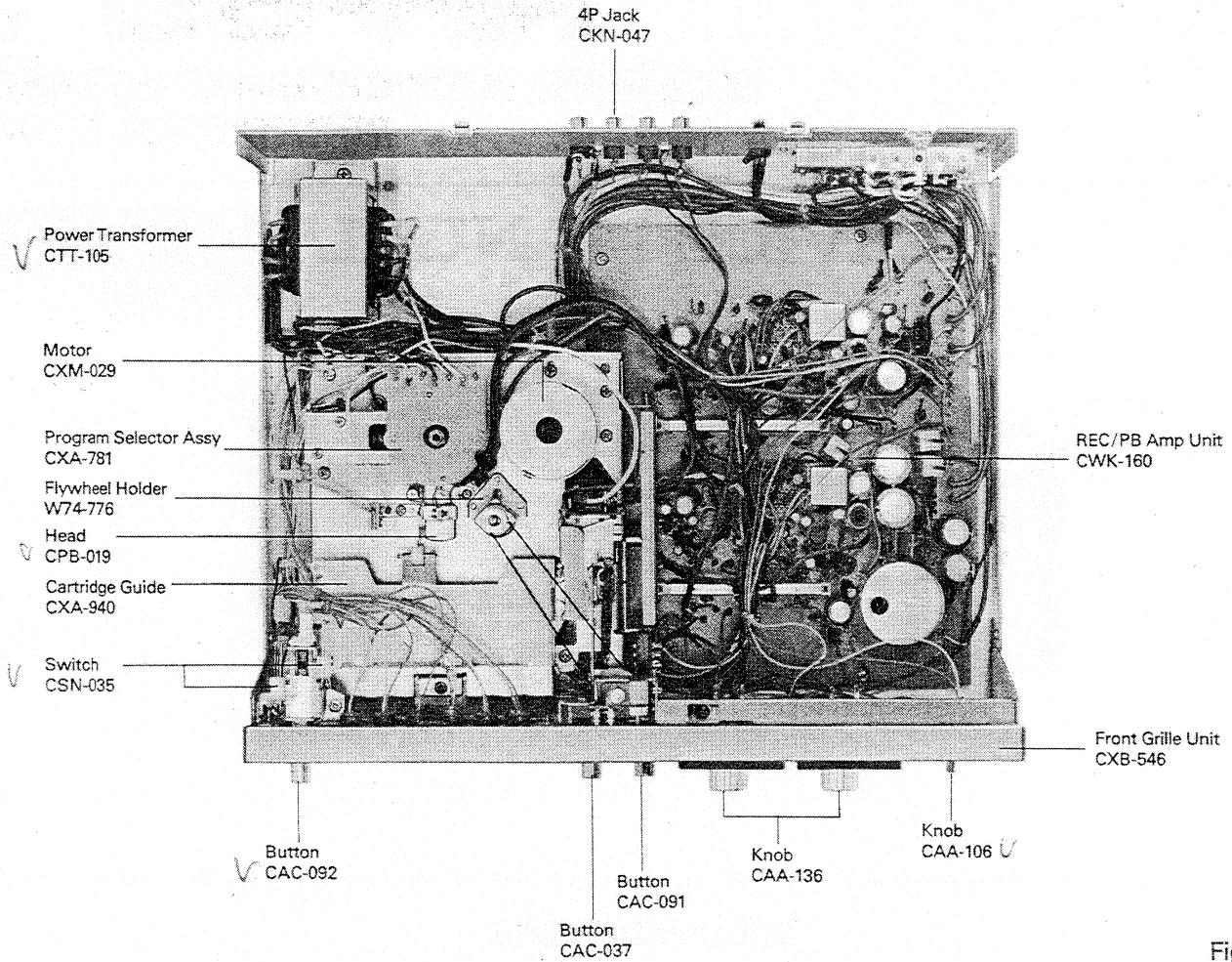


Fig. 1

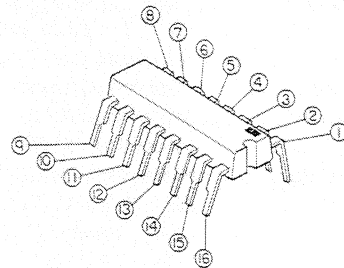
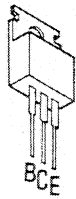
• IC's and Transistors

2SC644
2SC828
2SC1318

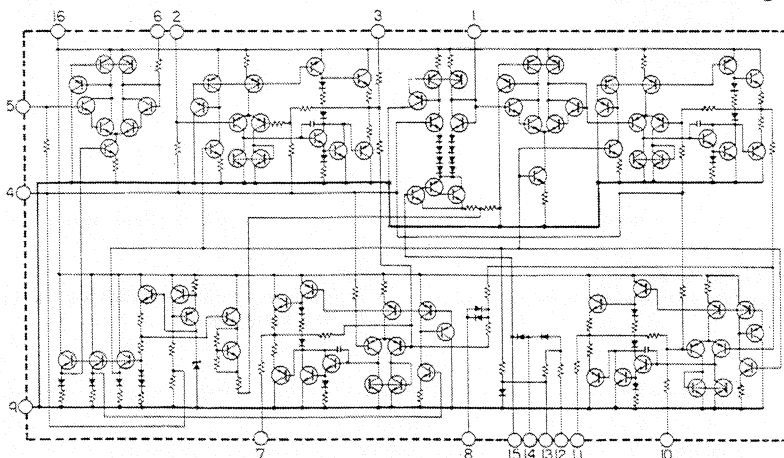
2SC1061

2SD471

CR860B



CR860B



SCHEMATIC CIRCUIT DIAGRAM

R

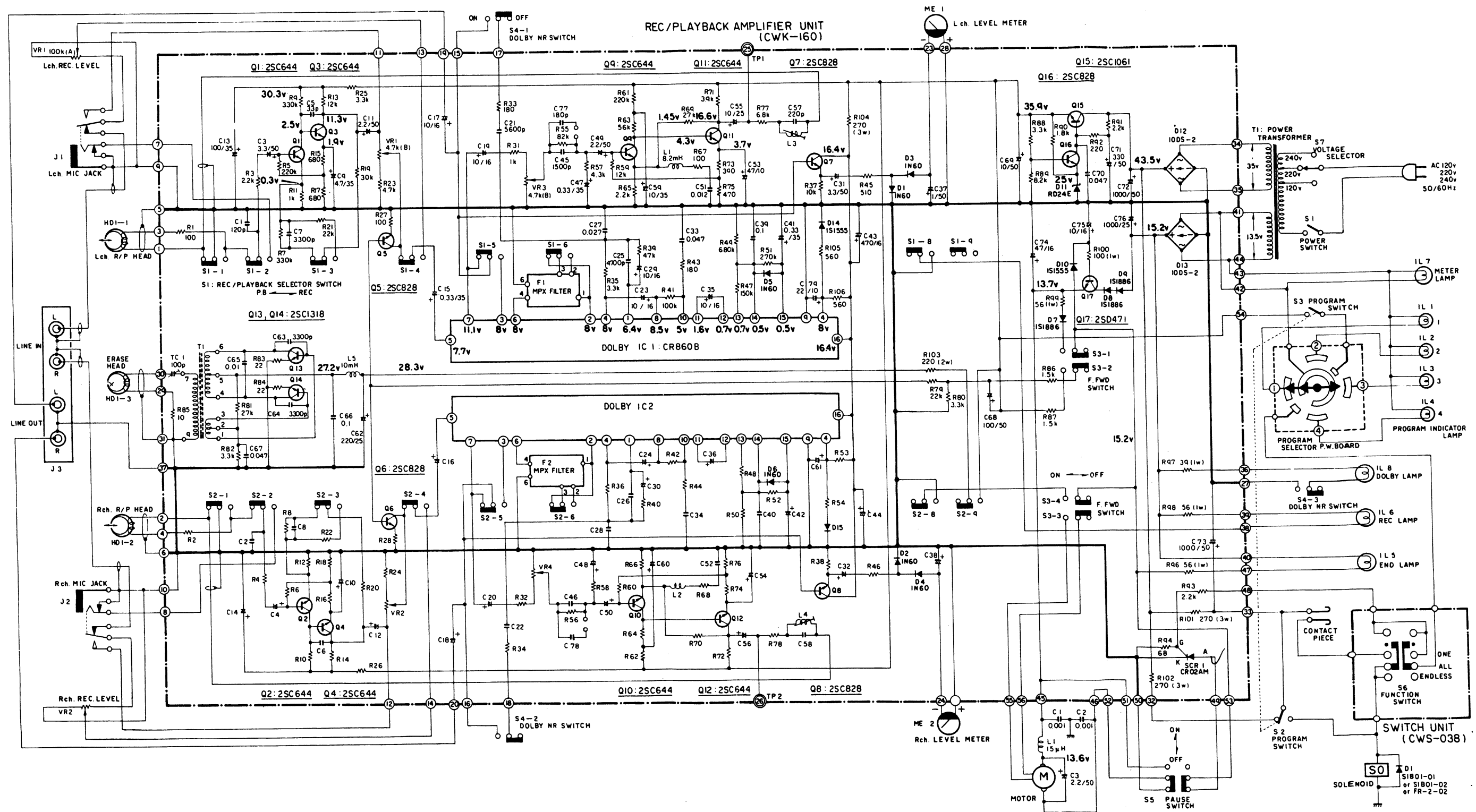


Fig. 2

REC/PB AMP UNIT (CWK-160) RH-65

This list shows the difference of parts for RH-65 ^{KU}/_{KC} and RH-65D. Page numbers in the list refer to RH-65 ^{KU}/_{KC} Service Manual.

• Parts List

NOTICE: Of the descriptive symbols of the resistor and capacitor, the encircled alphabetic letter denotes the allowable error.

Example: RD1/4VS100 ^⓵ C:±0.25pF F:±1pF J:±5% M:±20% Z: +80%
 CEA100 [Ⓟ] 25 D:±0.5pF G:±2% K:±10% X: +40%
 P: +100%
 -20% -10%

RESISTORS

RH-65 ^{KU} / _{KC}			RH-65 D	
(CWK-160)			(CWK-160)	
Ref. Key	Parts No.	Description	Parts No.	Description
R93	RD1/4VS103J	Resistor 10kΩ 1/4W	RD1/4VS222J	Resistor 2.2kΩ 1/4W
R94	RD1/4VS681J	Resistor 680Ω 1/4W	RD1/4VS680J	Resistor 68Ω 1/4W

CAPACITORS

RH-65 ^{KU} / _{KC}			RH-65 D	
(CWK-160)			(CWK-160)	
Ref. Key	Parts No.	Description	Parts No.	Description
C57	CKDYB221J50	Capacitor 220pF 50V	CKDYB221K50	Capacitor 220pF 50V
C58	CKDYB221J50	Capacitor 220pF 50V	CKDYB221K50	Capacitor 220pF 50V

RH-65 ^{KU} / _{KC}			RH-65 D		
Page	Parts No.	Description	Parts No.	Description	
17	CTT-084	Power Transformer	CTT-105	Power Transformer	
19	CXB-442	Front Grille Unit	CXB-546	Front Grille Unit ✓	
20	CTT-084	Power Transformer	CTT-105	Power Transformer ✓	
20	.....	.....	CKA-003	Voltage Selector ✓	Add
20	.....	.....	CND-180	Switch Holder ✗	Add
23	CRB-212	Owner's Manual	CRB-242	Owner's Manual ✓	
23	CHA-949	Carton	CHB-059	Carton	

5. SCHEMATIC CIRCUIT DIAGRAM

RH-65

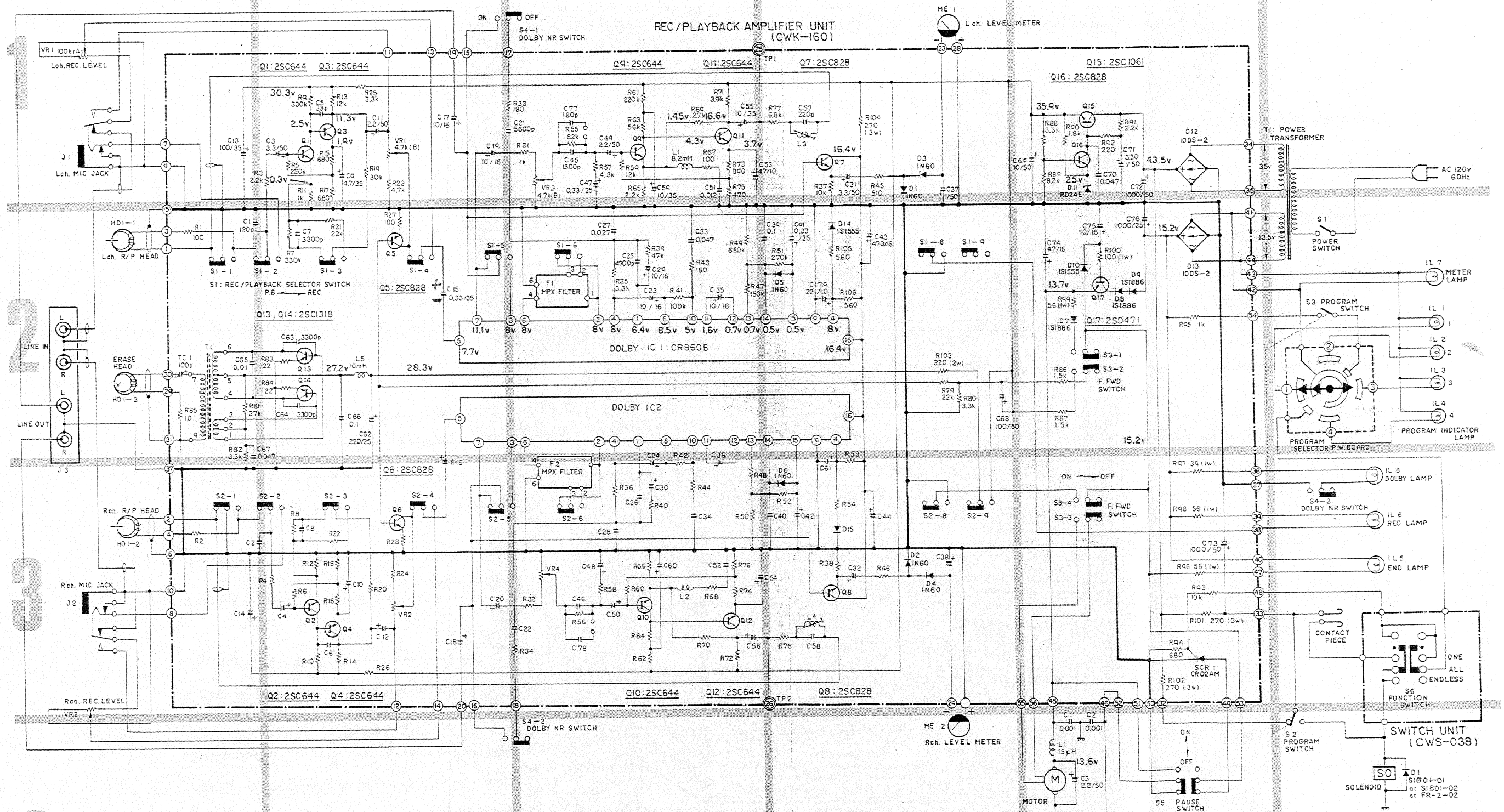


Fig. 12

6. REC/PB AMP UNIT (CWK-160) RH-65

REC/PB AMP UNIT (CWK-160)

• Parts Connection

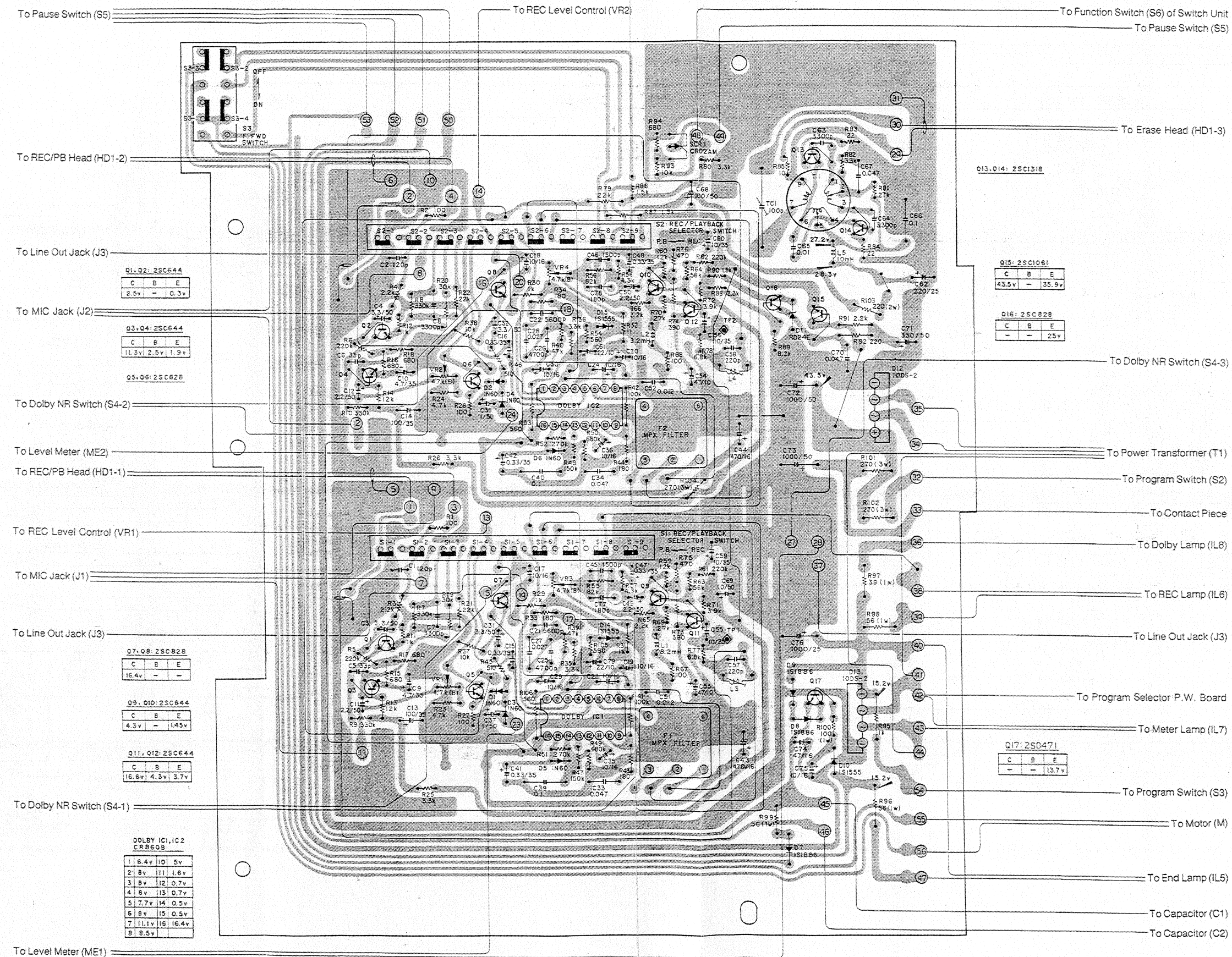


Fig. 13

9. CHASSIS EXPLODED VIEW

RH-65

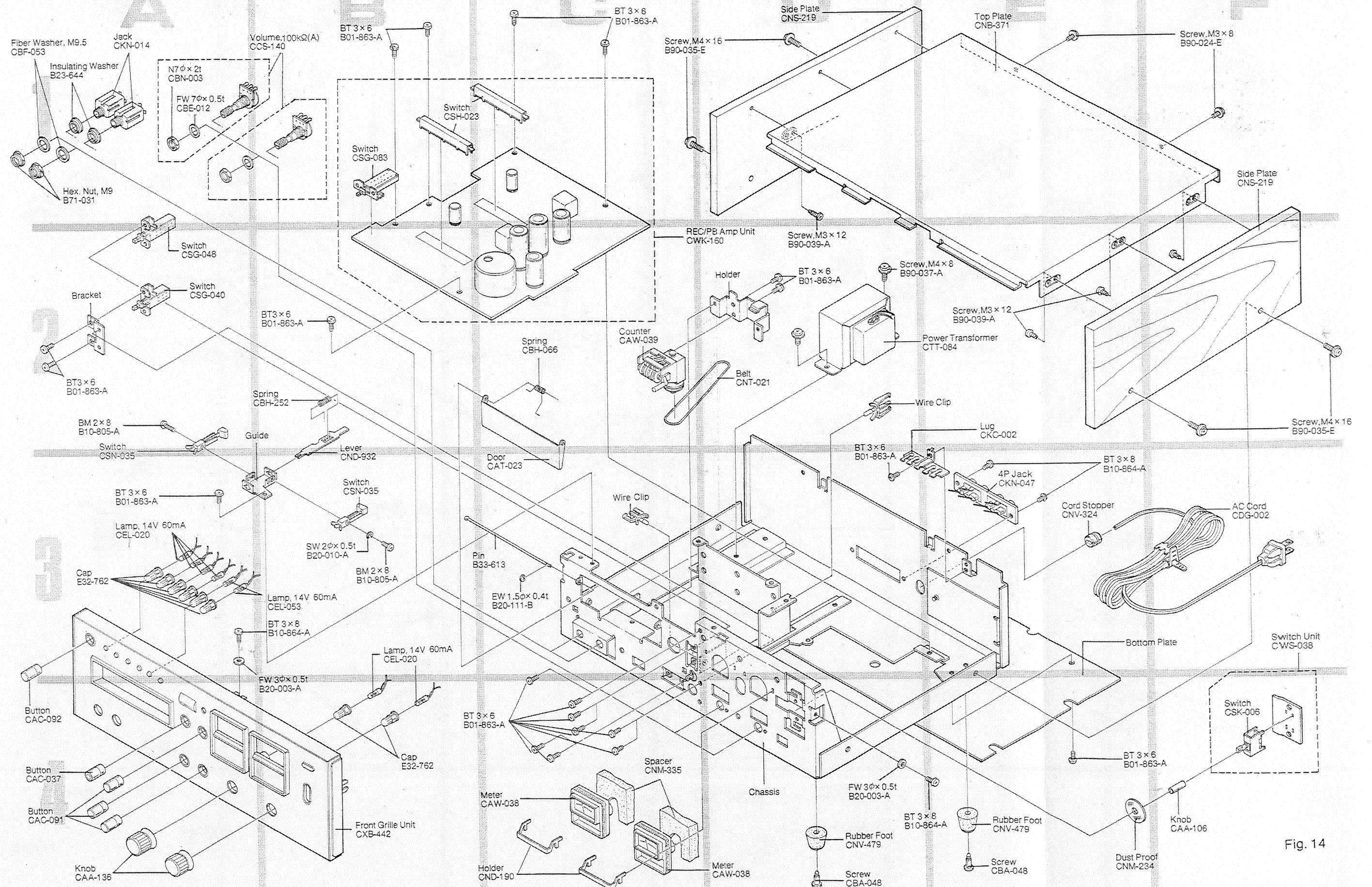


Fig. 14

10. 8 TRACK MECHANISM EXPLODED VIEW

RH-65

8 TRACK MECHANISM EXPLODED VIEW

NOTICE: Parts whose parts numbers are omitted are subject to being not supplied.

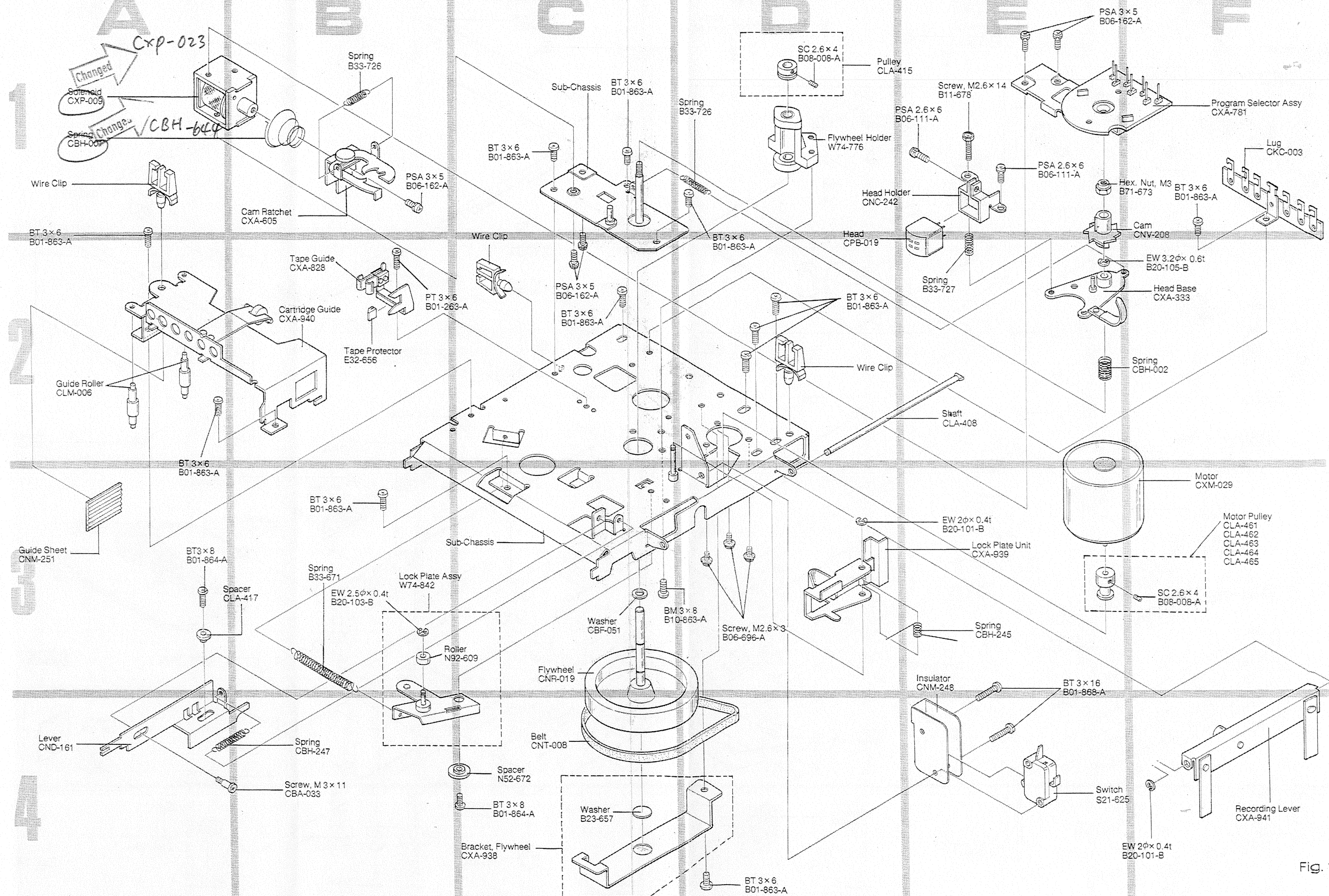


Fig. 15